Kindly cancel claims 1-11 and add new claim 28 as shown in the listing of claims below. This listing of claims will replace all prior versions, and listings of claims in the application.

1-11. (cancel)

12. (previously presented) An inorganic/organic hybrid nanolaminate barrier film, comprising:
a plurality of layers of an inorganic material; and
a plurality of layers of an organic polymer material wherein the layers of organic polymer material alternate with the layers of inorganic material;
wherein adjacent layers of the organic polymer material and inorganic material are covalently bonded to each other.

13. (previously presented) The barrier film of claim 12 wherein the total number of organic polymer and inorganic layers in the film is between about 100 and about 1000 layers, or between about 1000 and about 10,000 layers, or between about 10,000 layers and about 100,000 layers.

14. (original) The barrier film of claim 12 wherein each of the layers of inorganic material has a thickness of about 0.1 nm to about 1 nm; about 1 to about 10 nm; or about 1 nm to about 100 nm.

15. (original) The barrier film of claim 14 wherein the barrier film is substantially transparent.

16. (original) The barrier film of claim 12 wherein the barrier film has a permeability to oxygen less than about 1 $cc/m^2/day$, 0.1 $cc/m^2/day$, 0.01 $cc/m^2/day$, 10^{-3} $cc/m^2/day$, 10^{-4} $cc/m^2/day$, 10^{-5} $cc/m^2/day$, or 10^{-6} $cc/m^2/day$.

17. (original) The barrier film of claim 16 wherein the barrier film has a permeability to water vapor less than about 1 $g/m^2/day$, 0.1 $g/m^2/day$, 0.01 $g/m^2/day$, 10^{-3} $g/m^2/day$, 10^{-4} $g/m^2/day$, 10^{-5} $g/m^2/day$, or 10^{-6} $g/m^2/day$.

18. (previously presented) The barrier film of claim 12 wherein one or more of the organic polymer layers is a superhydrophobic layer.

19. (original) The barrier film of claim 18 wherein the superhydrophobic layer includes fluororalkylsilane.

20. (previously presented) The barrier film of claim 12 wherein the organic polymer layers are made from polymer precursors to which one or more one or more hydrophobic groups have been added.

21. (original) The barrier film of claim 20 wherein the one or more hydrophobic groups are selected from the group of non-polar hydrophobic groups, methyl groups, benzyl (aromatic) groups, PO_4^{3-}, SO_4^{2-}, CH_3COO^-, Cl^-, Br^-, NO^-, ClO_4^-, I^-, SC_n^- anions, NH_4^+, Rb^+, K^+, Na^+, Cs^+, Li^+, Mg^{2+}, Ca^{2+}, Ba^{2+} cations, tryptophan, isoleucine, phenylalanine, tyrosine, leucine, valine, methionine, and alanine.

22. (original) The barrier film of claim 12 wherein the barrier film is made from a sol including one or more Gemini surfactants.

23. (original) An article of manufacture, comprising:
an object having a surface; and
an inorganic/organic hybrid nanolaminate barrier film of the type set forth in claim 12 disposed on the surface.

24. (original) The article of manufacture of claim 23 wherein the object is selected from the group of optoelectronic devices, LEDs, solar cells, FETs, lasers, pharmaceutical products, tablets in packages, medical devices, food products, packaged foods, beverages, candies, display screens, touch panel displays, flat panel displays, electroluminescent windows, windows, transparent films and coatings, electronic components, and chassis for appliances used in rugged environments.

25. (previously presented) The barrier film of claim 12 wherein one or more of the layers of organic and/or inorganic materials are in the form of lamellae.

26. (previously presented) The barrier film of claim 12 wherein one or more of the layers or organic and inorganic materials are in the form of tubules.

27. (previously presented) The barrier film of claim 12 wherein the organic polymer material is chosen from the group of polyethylene naphthalate, polyether etherketone, polyether sulfone, polymers formed from fluorinated or non-fluorinated styrene polymer precursors, fluorinated

or non-fluorinated methyl styrene polymer precursors, fluorinated or non-fluorinated (meth)acrylate polymer precursors, and combinations and/or derivatives of two or more of these precursors.

28. (new) The barrier film of claim 12 wherein adjacent layers of the organic polymer material and inorganic material are covalently bonded to each other at an interface between organic and inorganic materials.